

The Department of Animal & Dairy Science

Newsletter

Summer 2020

Professor Michael J. Azain

Over more than three decades in animal nutrition, animal and dairy science Professor Mike Azain has understood that the work he does can mean the difference for food insecure populations around the world.

His research program in the Department of Animal and Dairy Science (ADS) investigates the relationship of macronutrient intake with composition of gain in meat animals, the understanding and manipulation of lipid metabolism, and the evaluation of alternative feed ingredients and feed enzymes in both swine and poultry diets to increase feed efficiency.

“My first job after earning my Ph.D. was with Monsanto,” said Azain, who worked in the new products identification and drug delivery discovery groups on bovine and porcine somatotropin from 1984 until 1988, when he joined the faculty at UGA.



*Professor
Michael J. Azain*

While he understands consumers’ concern about food safety, Azain feels the sentiment against the use of genetically modified organisms (GMOs) — including ingredients in animal feed — is often based on incomplete or inaccurate information.

“Applications of biotechnology, like bovine somatotropin, were developed for the producer who sold milk for a living. It made their business more efficient and had absolutely no impact on the consumer. It is frustrating that the science behind technologies like this gets swept under the rug by people who don’t

know the science behind it. It is marketing, but people think it becomes science when someone says GMOs are bad for you,” said Azain, who has authored more than 80 peer-reviewed scientific papers and is an active member of the Swine Nutrition Regional Committee.

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Department Info

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College of Agricultural &
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Professor Michael J. Azain

“It is easy to give out misinformation. It takes a longer conversation to tell the facts behind it. There are 7 billion people in the world. We can’t reject technologies and then promote non-GMO or organic production and natural labels that don’t mean anything if we can’t feed those 7 billion people.”

Since joining the University of Georgia College of Agricultural and Environmental Sciences (CAES) as an assistant professor in 1988, Azain has taught undergraduate- and graduate-level animal nutrition courses, as well as first-year seminars and study abroad programs.

In 2011 Azain taught his inaugural First-Year Odyssey seminar, called “What are those people gonna eat next week?” The title of the seminar comes from an interview with the late folk singer Harry Chapin, who had a passion for finding solutions to world hunger.

The seminar was focused on dispelling fears about conventional agriculture by exploring the relationship of agricultural practices to world hunger and, in particular, the challenge of increasing production in order to continue to feed the world. Topics included conventional versus local and organic production, the role of animal products in the diet, and biotechnology and food production. The seminar included a service-learning component during which students worked at the Northeast Georgia Food Bank.

“I gave that seminar five or six times and I’ve had students come back years later to say the food bank trips were very worthwhile and had an impact on them,” Azain said. “One of them said he still goes to work at the food bank regularly. That makes you feel good.”



Students touring the Alhambra in Granada, Spain.

Azain is the second-longest-serving faculty member in ADS, a span during which he has seen both the industry and the department evolve.

“The department has changed a lot. Our research is a lot different now with our faculty in the Regenerative Bioscience Center. Our breeding and genetics group is very strong and has been a highlight of the department. We’ve also got talented people in our traditional animal science areas, but it is harder to get funding for that kind of applied research,” said Azain, whose research is mainly funded through industry support.

“What I do now is very applied research in pig and poultry nutrition, looking at alternative feed ingredients, feed additive and enzymes that help with efficiency of production. In terms of the cost of production, more than 70% is related to feed. In the Southeast, producers pay more for corn and soy than in the Midwest. If I can find alternative ingredients and make the production of animals more efficient, that will help producers,” he said.

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Professor Michael J. Azain

In addition to teaching undergraduate and graduate-level courses — including “Animal Nutrition and Metabolism,” “Monogastric Nutrition,” and “Carbohydrates and Lipids in Animal Nutrition” — Azain has been the ADS graduate coordinator since 2011. He has been gratified to see student numbers grow.

“Our undergrad numbers are much larger — around 300 undergrads now when it used to be about 160 — and there are typically between 30 and 50 students working on master’s and doctoral degrees in the department each year,” said Azain, who was a member of the Senior Teaching Fellows program in 2009-10 and is a member of the UGA Teaching Academy.

Another challenge faced by Azain and his fellow CAES faculty this spring was the quick transition to online learning necessitated by the COVID-19 crisis. Fortunately, Azain has

had experience teaching online since 2014 with the Ag*Idea program, a collaboration of a consortium of schools including UGA, Clemson, North Carolina State, North Dakota State, Oklahoma State and South Dakota State universities that offers graduate level classes in a certificate program. Azain taught the “Advanced Non-Ruminant Nutrition” class each fall semester.

“I teach the large, undergraduate animal nutrition class and because I had that experience teaching the graduate class through Ag*Idea, it was fairly easy to transition to recorded lectures for that undergraduate class, but you miss the in-class interaction,” he said, adding that testing through the ELC system was the greatest challenge. “In my 8000-level class with graduate students, I got to know my 15 students much better through virtual classes — you miss some of the dialogue, but a lot of them would email me with questions, so it went very well.”

Although it was cancelled this year due to the COVID-19 crisis, Azain also directs the department’s study abroad program on food production practices, which he started in 2011 with another faculty member as the department’s first study abroad program.

First based in Toulouse, France, the program moved to Granada, Spain, in 2019, and covers topics including an overview of agriculture in the regions with segments on horticulture, economics, environmental science, biotechnology, poultry and pig production, cheese making, geomatics and wine making. Approximately 100 UGA students participated in the program in Toulouse from 2011 through 2018. In 2019, 25 students made the inaugural trip to Granada.

“We are already starting to plan for May 2021,” he said.



Students touring an Iberico ham processing plant near Granada, Spain.



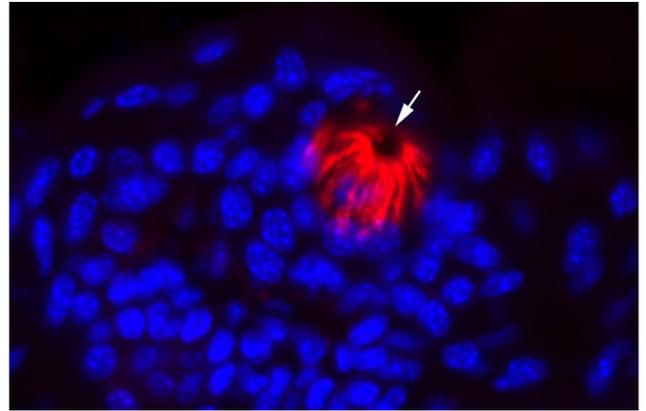


*Associate Professor
Gary J. Burtle*

Congratulations to Associate Professor Gary Burtle!

He has been selected for [the 2020 UGA Tifton Campus Excellence in Teaching Award](#).

Dr. Burtle is an Extension Aquaculture Specialist and conducts applied research related to fish nutrition and warm water aquaculture at the University of Georgia Tifton campus. Projects involve channel catfish, hybrid catfish, planktivorous fish, freshwater bass, and freshwater prawns. He has Extension programing responsibilities for aquaculture system management, aquaculture development, fish disease diagnostics, fish pond management, and aquatic weed control. He teaches junior-senior level courses in aquaculture and animal science. His non-academic experience includes work in the catfish industry as a processing plant manager, fish farm manager, chemist, and consultant.



Spiky COVID-19 particle no match for taste bud cells

Article by Charlene Betourney

A new study from the [Regenerative Bioscience Center](#) at the University of Georgia is the first to suggest that COVID-19 does not directly damage taste bud cells.

Contrary to previous studies that have shown damage may be caused directly by the virus particle, the researchers, led by Hongxiang Liu, associate professor of [animal and dairy science](#) in UGA's College of Agricultural and Environmental Sciences, found that taste loss is likely caused indirectly by events induced during COVID-19 inflammation.

An increasing number of COVID-19 patients have reported losses of smell and/or taste, prompting the CDC to add it to the growing list of symptoms for COVID-19. Recent research shows 20-25% of patients now report a loss of taste.

Continue reading [on our website](#).



From the Department Head

There are exciting changes coming to beef programming in Animal and Dairy Science. To begin, we are having our Focus on Genetically Enhanced EPD sale at the Livestock Instructional Arena on Thursday February 11, 2021. We will have a good selection of 2 year-old and yearling Angus bulls, and a limited number of purebred Angus heifers. We are going to start having our Block and Bridle Club work with Cannon Marketing on this sale, and a portion of the proceeds will go to Block and Bridle Scholarships.

Next, we are going to be working with AngusLinkSM, the American Angus Association's source and process verification program for feeder cattle. We are going to be transitioning our beef herds to the non-hormone treated cattle (NHTC) program, a USDA approved, third-party audit that verifies the source, age, and non-hormone treated status of calves. In addition, we

are going to NeverEver 3 verification by AngusLinkSM, and we are also going to be moving to GAP animal welfare certification. We are doing this to be able to use our herds for training programs for producers. Beef Quality Assurance (BQA) is the national program that trains producers on proper management techniques with a commitment to quality, which raises consumer confidence in our products. It has been a tremendous success, and the knowledge gained helps prepare producers for participating in value-added production and marketing programs. In recent years, value-added programs in the beef industry that focus on the calves produced have become more numerous, as they address the demand for non-hormone treated, and non-antibiotic beef production practices. By transitioning our herds to NHTC and GAP programs, we will be able to do research using different

production practices, and measure not only the performance of the cattle, but the revenue generated. By doing this work in Georgia, we won't be limited to giving answers from programs in different regions of the country that have different environments and forages. We will be gathering information for producers in Georgia and the entire southeast. These programs require a higher level of information gathering, and by actually going through the process, we will be able to do field days that show what's involved, and we will be able to provide more accurate information about the process, because we will be doing it! Experience is the best education, and our job is to be at the forefront of the industries we serve.



*Francis Fluharty,
Animal and Dairy Science
Department Head*



News

Associate Professor Kylee Duberstein

Originally from Missouri, Kylee Duberstein comes from a large family of multi-generational livestock farming. At the age of three, Kylee moved to Gainesville, FL where her father became the equine extension specialist for more than 30 years. Kylee grew up on a small family owned horse farm where she was involved in raising, training, and selling horses from a young age. Kylee remained in Gainesville and attended the University of Florida where she completed both her undergraduate degree and later a Ph.D. in the field of equine nutrition.

During this time, Kylee spent several years riding horses professionally and showing Grand Prix jumping horses at a national and international level, often riding homebred horses. After leaving Gainesville, she took a position at UGA working for Athletics as an assistant coach for the varsity Equestrian Team. She then moved to the Animal Science Department in July 2007 to instruct classes in equine science and serve as an equine extension specialist for UGA.

In her role at UGA, Kylee has taught more than eight different classes in Animal & Dairy Science, including Equine Nutrition as well as Anatomy and Biomechanics of the Horse, a class she created based on her interest in the unique demands, evaluation, and injuries seen in high level performance horses. Kylee also uses her strong riding background to head up the department's hands on equine program, teaching classes such as Beginning Horsemanship (a class that students all across campus take to learn the basics of horse handling and riding) and Operant Conditioning and Training of



*Associate Professor
Kylee Duberstein*

Horses (an advanced course in horse behavior and training). In addition, Kylee has developed a strong research program that often combines her two interests of nutrition and biomechanics.

In recent years, Kylee has branched out from horses and used her biomechanics knowledge to contribute to research involving motor function deficits and recovery from traumatic brain injury and stroke. Kylee has received funding from multiple sources to incorporate undergraduates into her research program and has taught a formal undergraduate research class almost every semester for the past decade. Kylee also serves as the scholarship chair for the department, where she coordinates scholarship awards and the department's end of the year banquet. She is currently serving as co-chair of the department's curriculum review committee.

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Kylee Duberstein

In her role as one of three equine extension specialists, Kylee primarily works in the area of adult education, providing support to county agents and veterinarians across the state. In this role, she assists horse owners in getting timely, science-based answers to their questions, primarily in the areas of equine nutrition and pasture management. Kylee talks to many horse groups, both youth and adult, across the state, and is currently producing a series of videos on forage education for the Equine Commodity Commission.

time, she enjoys doing tons of work on her farm as well as hiking and camping with her family.



Kylee Duberstein and Victoria Culver

Kylee currently lives outside of Athens on her own small horse farm with her husband and two elementary school-aged children. In her free



Maddie Gloeggler, Cody Swint, Marrison Blackwell, Kylee Duberstein



Assistant Professor Valerie Ryman

Dr. Valerie Ryman is originally from a small town in Aiken County, South Carolina where she grew up without any interaction with livestock. Little did she know, her introduction to dairy cattle in college would lead her on a path to find her true passion.

Dr. Ryman attended Clemson University for her B.S. in Animal and Veterinary Science with the initial goal of attending veterinary school to be a small animal veterinarian. However, after becoming involved in various dairy-related clubs and activities, and simply experiencing the joy of interacting with dairy cattle, she found her calling. To follow her dreams, she continued on to The University of Georgia for her M.S. in Dairy Science. At UGA, she worked under Dr. Steve Nickerson, a world renowned lactation physiologist and mastitis specialist. Her work focused on investigating the use an immunostimulant in dairy heifers to reduce mastitis, improve milk quality, and enhance milk yield. Next she continued on to Michigan State University to work under Dr. Lorraine Sordillo, a pioneer in the field of transition cow diseases, including mastitis. Dr. Ryman's work at MSU explored the inflammatory mechanisms during mastitis caused by an increasingly predominant group of mastitis pathogens, environmental streptococci.



Assistant Professor Valerie Ryman

After a brief hiatus as a postdoctoral associate studying the host-pathogen interactions of *Bordetella bronchiseptica* and *B. pertussis* (pathogens which cause kennel cough in dogs and whooping cough in humans, respectively), she came back to her true passion and rejoined the Department of Animal and Dairy Science at UGA as a state dairy extension specialist in September of 2017. As of May 2019, Dr. Ryman is an assistant professor and a state dairy extension specialist with a 55% instruction and 45% extension appointment. Dr. Ryman teaches one of the most important introductory courses, Practicum in Animal and Dairy Science. For over 80% of the students entering ADS and animal and/or dairy science majors, they have had little to no interaction with livestock and production agriculture, like Dr. Ryman herself. This course is deigned to introduce them to dairy cattle, beef cattle, sheep, pigs, and horses. In this hands-on course with a three hour lab component, basic management and husbandry techniques to provide a foundation on which later courses in ADS are built.

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Valerie Ryman

Dr. Ryman also teaches Orientation to Animal and Dairy Science where students hear from speakers representing various animal science fields, including, but not limited to small and large animal veterinarians, federal government employees, feed company consultants and sales representatives, biomedical researchers, etc. Dr. Ryman also enjoys her time in the classroom teaching Physiology of Lactation in Farm Animals. She incorporates active learning strategies and small hands-on activities to mix-up the traditional lecture format. It is a rigorous course, but it is in this environment that students can combine the knowledge they've gained in other courses and apply it to complex topics. Dr. Ryman also teaches a First Year Odyssey seminar aimed at introducing young students to the dairy industry at the UGA Teaching Dairy and a graduate seminar course for ADS graduate students to enhance their skills in delivering scientific presentations. Most recently, Dr. Ryman was honored to be selected as a Lilly

Teaching Fellow for 2020-2022. Up to 10 junior faculty are selected each spring to join the two-year program with the goal of enhancing successful teaching skills. She joins only two other ADS faculty, Dr. Acie Murray and Dr. Kari Turner, to be selected since the program's inauguration in 1984.

In addition to her instruction activities, Dr. Ryman also maintains an active undergraduate and applied research program focused on improving mammary health and milk quality in non-lactating and lactating dairy animals. Some of her projects include assessing dairy heifer secretions for signs of mastitis in advance of calving, testing novel systems for rapid identification of mastitis pathogens, and assessing milk quality and mammary health in post-lambing ewes from the UGA Double Bridges Beef and Sheep Unit. Dr. Ryman has some exciting undergraduate and applied research plans for the Fall semester with the hopes that students are able to return.

Lastly, Dr. Ryman finds inspiration in the dairy producers she gets to interact with through her extension duties. These are the individuals which drive her to educate young people and bring them into the dairy industry, just as she was. In collaboration with Cooperative Extension's Agriculture and Natural Resource Agents, Dr. Ryman strives to work with producers to improve cow health and well-being, with a focus on mammary health and milk quality. Her efforts center around reducing incidence of mastitis in both dairy heifers and lactating dairy cows. Dr. Ryman works to include undergraduates in these efforts and has plans to train graduate students in dairy extension as well. Her efforts in her undergraduate and applied research address the needs of these valuable stakeholders in Georgia, the Southeast, and nationally.



Assistant Professor Valerie Ryman



Student Spotlight

Marrissa Blackwell

Marrissa Blackwell is an alumnus of our Department of Animal & Dairy Science as well as a current full time employee and graduate student. Marrissa serves as an assistant manager for our equine unit helping care for the herd as well as assists with research projects and labs held at the facility.

Though not raised from an agricultural background, Marrissa began working on a horse farm in exchange for riding lessons and has been following the path ever since. As a sophomore, she got involved heavily in equine research and began working under Dr. Kyle Duberstein on project involving vitamin E supplementation and its effects on oxidative stress, as well as working on feeding trials to analyze the anthelmintic effects of sericea Lespedeza. In addition, Marrissa started as a student worker at the Livestock Instructional Arena, home of the equine unit, and has been involved in the program ever since!

Marrissa had the opportunity to lead her own project, write a publication, and present at the 2017 Equine Science Symposium in Minneapolis, Minnesota on her work titled “The Effect of sericea Lespedeza on Strongyle Fecal Egg Counts in Mature Horses.” Marrissa says that it is because of the unique research opportunities and wonderful guidance under Dr. Duberstein that she was inspired to pursue a master’s degree.

In addition to her equine passions, Marrissa also pursued an interest in the beef cattle industry. She was a member of the collegiate chapter of the Georgia Cattlemen’s Association as well as an active participant in activities at the state level for the organization. She served as an intern for the 2019 Georgia Cattlemen’s Convention and Beef Expo as well as the



Marrissa Blackwell and LT

Georgia Beef Board. She truly enjoyed being able to serve and engage with beef producers across the state and was inspired to develop a career as a young industry member.

Marrissa currently serves as the secretary of the Young Cattlemen’s Council of Georgia Cattlemen’s Association where she works alongside board members to help provide opportunities to young industry members.

She also is pursuing her master’s degree under Dr. Lawton Stewart and is conducting research on Sodium Butyrate supplementation and its effects on transportation stress in calves. Marrissa also is working on program evaluation and data analysis for the Northeast Georgia Beef Cattle Short Course.

In addition to her duties as a manager of the Livestock Arena and graduate student in the beef program, Marrissa assists with youth livestock programs under the guidance of Sarah Loughridge.

She is eternally grateful for all of the industry and educational opportunities that the Animal and Dairy Science Department has afforded to her. She hopes to utilize her education to further serve the department and represent it well as she hopes to work with the beef cattle producers across the state in the future.



Student Spotlight

Dawson Fields

Dawson Fields has a love for the dairy industry in his blood. His grandfather was a USDA dairy and milk truck inspector for almost 30 years and his aunt and uncle both showed dairy cattle when they were in high school. So, it was natural for Dawson to gravitate towards this same path.

Dawson is from Waynesboro, Georgia. Waynesboro is situated in Burke County, currently home to 10 dairies and over 6,000 dairy cows. At Burke County High School Dawson joined Future Farmers of America and became involved in dairy judging and dairy heifer showing. Other accolades from his time in FFA include participating in the Governor's Honors Program Alumni for Agriculture Science, member of the 2017 Poultry Judging Team, and high individual in the FFA Area 4 Farm Business Management and Dairy Judging. While Dawson favors dairy cattle most, he has been involved in agriculture all of his life. He grew up assisting his dad in training horses and helping his uncle farm row crops and bale hay.

Dawson joined the Animal and Dairy Science Department at University of Georgia in the fall of 2018 to double major in Animal Science and Dairy Science. Since coming to UGA, Dawson has been an active member of the Dairy Science Club. He was awarded the Moo Kid Award as a new member, previously served as Treasurer, and was most recently elected to be president for 2020-2021. In addition, Dawson is a member of the Dairy Show Team and has served as a show team co-chair in past years. Dawson was also a member of the 2019 UGA Dairy Judging Team. They were awarded the honor of High Team in the Holstein Breed at the North American International Livestock Exposition Invitational Dairy Judging Contest. Being a part of this group, truly allowed Dawson to further develop his dairy cattle evaluation skills and public speaking confidence.



Dawson Fields and Dot

To gain additional experience with dairy cattle and dairy farming, Dawson was a student worker at the UGA Teaching Dairy for nine months where he milked cows, fed calves, and assisted with any necessary farm chores. He currently works at the UGA Meat Science Technology Center. Dawson says that this position has provided him with the opportunity to experience the entire production cycle, from raising animals on the farm to humanely slaughtering and processing the carcass as a wholesome food product for human consumption.

Dawson's career goal is to attend veterinary school to specialize in mixed animal medicine so that he may return to rural Georgia and provide needed services to the community. In addition to his coursework and experiences at UGA, Dawson has worked with two of the best mixed animal vets in the state Dr. Ace Clark and Dr. Sam Evans at the Swainsboro Animal Hospital. To further accelerate his journey to becoming a mixed animal veterinarian, Dawson was recently accepted in the UGA Food Animal Veterinary Incentive Program Class of 2022. This program is specifically designed to train food animal veterinarians for under-served communities, which fits Dawson perfectly. Dawson is dedicated, professional, and an asset to the Department of Animal and Dairy Science.

